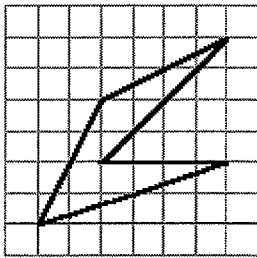*Answers must be exact of have four or more significant digits, correctly rounded, unless specified otherwise in a particular problem.*

1. What is the 2002nd digit of $\dfrac{7}{17}$?

2. If two 6-sided dice are thrown, what is the probability that the product of the two numbers showing is even?

3. If the grid lines are spaced one unit apart, what is the area of the following polygon?

4. One of three cards is placed on the table. You know that one of the cards is red on both sides, one of the cards is yellow on both sides, and one of the cards is red on one side and yellow on the other. If the card on the table has a red side facing up what is the probability that the other side is also red?

5. The sum of n consecutive odd whole numbers is 1477, where $n > 1$. What is the least of these n whole numbers?

6. Find $f(15)$ for the function $f(n) = \begin{cases} n & \text{if} & n \leq 5 \\ f(n/2) & \text{if} & n > 5 \text{ and } n \text{ is even} \\ f(3n+1) & \text{if} & n > 5 \text{ and } n \text{ is odd} \end{cases}$

7. Of 2, 3, and 4, which are factors of $5^{2002} - 1$?

8. If you write out all the digits of 2002! how many zeros appear at the right end of the number?

9. Find x where x is defined by the following infinite continued fraction

10. If the volume of a regular tetrahedron is 1 cubic inch what is the volume of a regular octahedron with the same edge length?